Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A system for controlling network congestion, comprising:

a device configured for communicating a sequence of packets over a network;

means, within said device, for sending packets of a sequence in a back-to-back nature, wherein back-to-back packets are packets which are communicated, with no delay between the back of one packet and beginning of the next packet, one after another in a single burst within the sequence of packets; and

means, within said device, for explicitly indicating which packets within said sequence of packets are being sent back-to-back, and for setting congestion control parameters for a sender in response to estimating network bandwidth based on the receipt, by a receiver, of explicit back-to-back packet indications;

means for the receiver to control sender packet train size in response to bandwidth estimations by changing a rate value *m* at which receipt acknowledgements (ACKs) are communicated from the receiver to said sender, and in response to which the sender transmits a corresponding number of packets back-to-back;

wherein said rate value *m* is the rate at which acknowledgements are communicated from the receiver to control the number of back-to-back packets to be sent by the sender; and

wherein said rate value *m* is given as the number of back-to-back packets to be sent by the sender [[per]] for each said acknowledgment (ACK) sent by the receiver.

2. (previously presented): A system as recited in claim 1, further comprising means for estimating the number of back-to-back packets received by the receiver from the sender and utilizing that information in conjunction with the explicit back-to-back packet indications.

3. (previously presented): A system as recited in claim 2, wherein said estimating of back-to-back packets received from the sender comprises determining the amount of data within acknowledgement packets (ACKs) and/or determining whether transmissions were sent back-to-back in response to examining packet timestamps.

4. (previously presented): A system as recited in claim 2, wherein said back-to-back estimates are utilized for checking the presence and validity of explicit back-to-back indications from the sender.

5. (previously presented): A system as recited in claim 2, wherein said back-to-back estimates are utilized when explicit back-to-back packet indications being received from the sender are either not available or appear erroneous.

6. (original): A system as recited in claim 1, wherein said setting of congestion control parameters for a sender regulates packet transmissions by said sender in response to available bandwidth between said sender and the receiver.

7. (original): A system as recited in claim 1, wherein said network operates according to a transport control protocol (TCP).

Claims 8-9 (canceled)

10. (previously presented): A system as recited in claim 1, wherein the size of segments being sent is reduced a given number of bits from said maximum segment size (MSS) for explicitly indicating by the sender to the receiver that said packets are being sent back-to-back.

11. (original): A system as recited in claim 1, wherein said congestion control parameters comprise a slow start threshold.

12. (original): A system as recited in claim 1, wherein said congestion control parameters comprise a congestion window value.

13. (previously presented): A system as recited in claim 1, wherein said means for explicitly indicating back-to-back packets and setting congestion control parameters comprises:

a computer within said device;

programming within said computer for,

explicitly marking packets, in the sender, according to whether or not they are being sent back-to-back without delays between successive packets,

estimating bandwidth based on receiving packets from the sender which are marked with back-to-back packet indications,

determining congestion control parameters in response to said congestion estimating,

communicating said congestion control parameters to the sender.

14. (currently amended): A system for controlling network congestion, comprising:

a device configured for communicating over a network;

a processor within said device configured for controlling the sending and receiving of packets over said network; and

programming configured for executing on said processor for,

sending packets of a sequence in a back-to-back nature in a single burst in which there is no delay between the back of one packet and the beginning of the next packet,

marking packets, in a sender, to explicitly indicate if they are sent back-to-back,

estimating network bandwidth in response to receipt of said explicit indications of back-to-back packets to generate network bandwidth estimates,

establishing congestion control parameters in response to said network bandwidth estimates;

controlling the length of packet trains transmitted by the sender in response to modifying the rate at which receipt acknowledgements (ACKs) are communicated from the receiver to the sender to which the sender transmits a corresponding number of packets back-to-back;

wherein said rate at which acknowledgements are communicated by the receiver is configured to control the number of back-to-back packets to be sent by the sender; and

wherein said rate is given as the number of back-to-back packets to be sent by the sender [[per]] for each said acknowledgment (ACK) sent by the receiver.

15. (original): A system as recited in claim 14, wherein said network communications are performed according to a transport control protocol (TCP).

Claims 16-18 (canceled)

19. (previously presented): A system as recited in claim 14, wherein the size of packets being sent is modulated in response to whether or not the packets are sent back-to-back.

20. (original): A system as recited in claim 19, wherein said size of packets being sent is reduced from the maximum segment size (MSS) value according to a predetermined number of bits for indicating whether the packets are being sent back-to-back.

21. (original): A system as recited in claim 20, wherein said predetermined number of bits can be 1, 2 or 4 bits.

22. (original): A system as recited in claim 14, wherein said congestion control parameters comprise a slow start threshold.

23. (original): A system as recited in claim 14, wherein said congestion control parameters comprise a congestion window value.

24. (previously presented): A system as recited in claim 14, wherein the size of segments being sent is reduced a given number of bits from said maximum segment size (MSS) for explicitly indicating by the sender to the receiver that said packets are being sent back-to-back.

25. (original): A system as recited in claim 14, wherein said marking of packets is performed for every packet sent or performed in response to congestion.

26. (currently amended): A system for controlling network congestion, comprising:

a device configured for communicating over a network;

a processor within said device configured for controlling the sending and receiving of packets over said network; and

programming configured for executing on said processor for,

sending packets of a sequence in a back-to-back nature in a single burst in which there is no delay between the back of one packet and the beginning of the next packet,

explicit marking of packets which are sent back-to-back,

estimating network bandwidth in response to receipt of explicit indications of back-to-back packets or utilizing back-to-back packet estimations,

controlling the length of packet trains transmitted by the sender in response to altering the rate at which receipt acknowledgements (ACKs) are communicated from the receiver to the sender as based on estimated network bandwidth;

wherein said rate at which acknowledgements are communicated by the receiver comprises the number of back-to-back packets to be sent by the sender;

wherein said rate value *m* is given as the number of back-to-back packets to be sent by the sender [[per]] for each said acknowledgment (ACK) sent by the receiver; and

wherein the size of segments being sent is reduced a given number of bits from said maximum segment size (MSS), or the setting of at least one header bit is changed, for explicitly indicating by the sender to the receiver that said packets are being sent back-to-back.

27. (currently amended): A method of using bandwidth estimation to improve transport control protocol (TCP) congestion control within a packet based network, comprising:

marking each packet, explicitly, that is being sent back-to-back, from a sender, to a receiver;

wherein packets of a sequence are in a back-to-back nature when sent in a single burst in which there is no delay between the back of one packet and the beginning of the next packet;

estimating bandwidth in response to receiving packets from other senders which are explicitly marked as back-to-back packets; and

communicating congestion control parameters to the sender in response to said bandwidth estimates;

altering the rate at which receipt acknowledgements (ACKs) are communicated from the receiver to the sender as based on estimated network bandwidth whereby the sender transmits a corresponding number of packets back-to-back;

wherein said rate at which acknowledgements are communicated by the receiver comprises the number of back-to-back packets to be sent by the sender;

wherein said rate value *m* is given as the number of back-to-back packets to be sent by the sender [[per]] for each said acknowledgment (ACK) sent by the receiver; and

wherein the size of segments being sent is reduced a given number of bits from said maximum segment size (MSS) for explicitly indicating by the sender to the receiver that said packets are being sent back-to-back.

28. (original): A method as recited in claim 27, further comprising:

estimating the number of packets being received back-to-back; and

utilizing said packet number estimates in conjunction with the explicit back-to-back packet indications when estimating bandwidth.

29. (original): A method as recited in claim 28, wherein said estimating of back-to-back packets received from a sender comprises estimating the amount of data

in acknowledgement packets (ACKs) and/or estimating whether transmissions were sent back-to-back in response to examining a packet timestamp.

30. (original): A method as recited in claim 28, wherein said back-to-back estimates are utilized for checking the presence and validity of explicit back-to-back indications from a sender.

31. (original): A method as recited in claim 28, wherein said back-to-back estimates are utilized when explicit back-to-back packet indications being received from a sender are either not available or appear erroneous.

Claims 32-33 (canceled)

34. (previously presented): A method as recited in claim 27, wherein said changing of the size of packets being sent is based on reducing the number of bits in a packet from the maximum segment size (MSS) by a predetermined number of bits.

35. (original): A method as recited in claim 34, wherein said predetermined number of bits can be 1, 2 or 4 bits.

36. (original): A method as recited in claim 27, further comprising controlling the length of packet trains transmitted by a sender in response to modifying the rate at which receipt acknowledgements (ACKs) are communicated from a receiver.

37. (previously presented): A method as recited in claim 36, wherein said modifying of the rate at which receipt acknowledgements (ACKs) are communicated comprises establishing a predetermined number of packet receptions before packet acknowledgement.

38. (original): A method as recited in claim 27, wherein said congestion control parameters comprise a slow start threshold.

39. (original): A method as recited in claim 27, wherein said congestion control parameters comprise a congestion window value.